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Arizona Corporation Commission

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March 30, 2018

Docket Control Arizona Corporation Commission 1200 W. Washington Street Phoenix, AZ 85007

RE:

Arizona Public Service Company

2017 Renewable Energy Standard Annual Compliance Report

Docket No. E-00000R-16-0084

Pursuant to Arizona Administrative Code R14-2-1812(A), Arizona Public Service Company (APS or Company) is required to file an annual report detailing its compliance with the Renewable Energy Standard (RES) rules:

Beginning April 1, 2007, and every April 1st thereafter, each Affected Utility shall file with Docket Control a report that describes its compliance with the requirements of these rules for the previous calendar year.... The Affected Utility shall also transmit to the Director of the Utilities Division an electronic copy of this report that is suitable for posting on the Commission's website.

Attached please find the Company's 2017 RES Compliance Report. An electronic copy of the RES Compliance Report will also be provided to Staff's Utilities Division Director. Competitively confidential information contained in the Report and native Excel files will be submitted to Staff separately pursuant to an executed Protective Agreement.

If you have any questions, please contact me at (602) 250-3341.

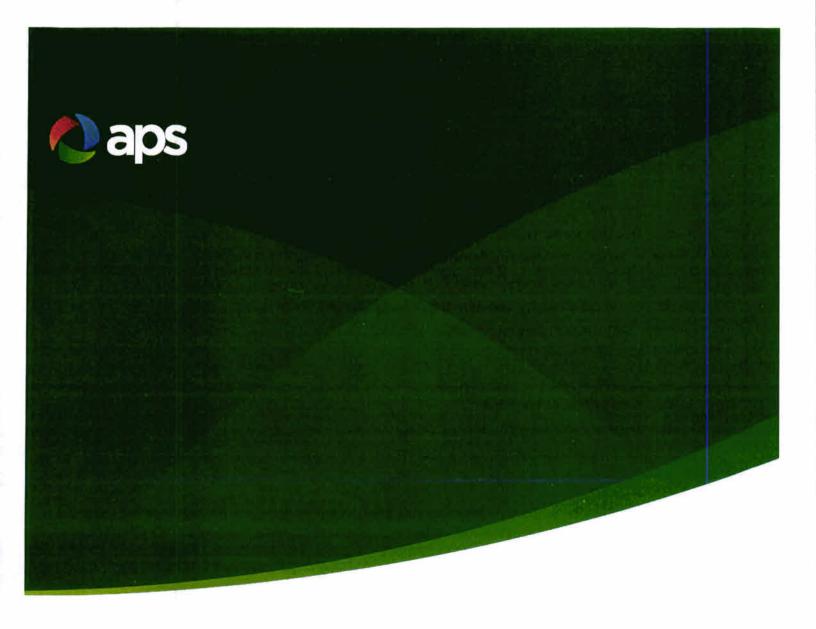
Sincerely,

Kerri A. Carnes

KC/ks Enclosures

c: Elijah Abinah (via e-mail with file for publication)

James Armstrong Barbara Keene



2017 RENEWABLE ENERGY STANDARD COMPLIANCE REPORT

March 30, 2018

Table of Contents

I.	2017 Renewable Energy Standard (RES) Results
Α.	Compliance with RES Requirements
В.	Installed Resources
	Renewable Generation Resources
II.	2017 Associated Revenue and Costs
Α.	Renewable Energy Standard Adjustment Charge (REAC-1)4
	2017 RES Ajustment Schedule REAC-1 4
В.	Resource Costs6
C.	Residential and Non-Residential Incentive Program
D.	Green Choice Rate Program 7
E.	Solar Water Heater Study7
F.	Voluntary Solar Contribution Program 7
G.	APS Solar Communities8
III.	Additional Reporting 8
Ap	pendix A: Independent Monitor Letter10

Renewable energy resources installed in APS's service territory produced 3,621,537 MWh in 2017, which includes energy from rooftop solar installations for which an incentive was not provided. This is equivalent to nearly **12.9 percent** of APS's 2017 retail sales. APS's renewable energy portfolio and compliance with the Renewable Energy Standard (RES) are discussed below.

I. 2017 Renewable Energy Standard (RES) Results

A. Compliance with RES Requirements

The Arizona Corporation Commission (Commission) requires through the Renewable Energy Standard and Tariff Rules (RES Rules) that 7.0 percent of the utility's 2017 retail kilowatt-hour (kWh) sales come from eligible renewable energy resources. In 2017, the Company's total RES resources were 2,905,708 MWh, which is 10.4 percent of APS's total 2017 retail sales. The RES Rules further mandate that 30 percent of an affected utility's total requirement be fulfilled with energy produced from Distributed Energy (DE) sources, one-half of which may come from residential applications and the remaining one-half from non-residential, non-utility applications. Although APS requested and received a waiver from the residential DG requirement, APS met all RES compliance requirements in 2017.

Under the RES Rules, compliance to the RES is measured using Renewable Energy Credits (RECs). For the purposes of RES compliance tracking, a REC is defined as the environmental attributes associated with a kWh of energy derived from eligible renewable resources or the kWh equivalent of conventional resources displaced by distributed resources; however, throughout the Compliance Report APS discloses its production in megawatt-hours (MWh).²

The table below represents APS's 2017 performance vs. RES Requirements. A more detailed summary of APS's 2017 compliance is shown in Table 1a (see page 2). Table 1b (see page 3) illustrates total RES resources on the APS system at the end of 2017.

Category	Metric	%	Compliance Measure (MWh)	RES Resources (MWh)	% of Requirement
Distributed Energy RES Requirement	% RES Requirement	30%	588,206	781,336	132.8%
Residential DE Requirement	% of DE Requirement	50%	294,103	297,680	101.2%
Non-Residential DE Requirement	% of DE Requirement	50%	294,103	483,655	164.5%

¹ A.A.C. R14-2-1801

² A.A.C. R14-2-1805D

Compliance Report - Energy

Table 1a - 2017 Compliance Summary

Category	Metric	%	Compliance Measure (MWh)	RES Resources (MWh or Equivalent)	
Retail Sales	Actual MWh Sales for 2017		28,009,805		
Prior year carrying balance ¹				5,846,420	(1
2017 Total RES Resources [Fro	m (H) in Table 1b]			2,905,708	()
2017 Total RES Requirement	% of Retail Sales	7.0%	1,960,686		
DE Requirement	% of RES Requirement	30%	588,206		
DE Sub-Requirements:				2000-2007-2007	
Residential DE	% of DE Requirement	50%	294,103	297,680	()
Non-Residential DE	% of DE Requirement	50%	294,103	483,655	()
Non-DE Target				1,179,351	(0
Resources Used for 2017 Comp	liance (K + L + M)			1,960,686	(1
End 2017 carrying balance (T+ 1- N)			6,791,441	(0

Notes to Table 1a:

B. Installed Resources

An overview of APS's total installed portfolio as of the end of 2017 is provided in Table 1b. The table includes projects installed to-date from prior calendar years, accounting adjustments for RES eligibility standards, including the subtraction of Green Choice sales, the expected production (annualized) from installed DE systems, a multiplier applied to in-state solar installations completed by end of year 2005, and Renewable Generation Resources.³

1. Renewable Generation Resources

The Company's portfolio of Renewable Generation (RG) energy encompasses grid-scale renewable resources.⁴

The RES-eligible resource carrying balance is accounted for using First-In-First-Out (FIFO) methodology, wherein the entire carrying balance is applied to the RES requirement and the year-end carrying balance consists of current year remaining resources.

³ Per A.A.C. R14-2-1801R and Decision No. 72737. Wholesale Distributed Generation includes utility-owned and non-utility owners of eligible renewable energy resources interconnected at 69kV or lower.

⁴ APS defines Renewable Generation as renewable resources interconnected on the utility side of the meter. Renewable Generation resources are generally grid-scale projects and apply to the RES total production requirement.

Compliance Report - Energy

Table 1b - 2017 Renewable Resources

					724 19 19	Production	Multiplier	200 00000
Resource	Technology	Ownership	MWac ¹	MWdc ¹	Production MWh (Actual) +	MWh (Annualized)	Credits + (MWh) =	Total MWh or Equivalent
RESOURCE	recimology	Ownership	HWAL	HWac	HWH (Accust) T	(Annualized)	r (men) -	Eduivaient
GENERATION:								
ragonne Mesa	Wind	3rd Party PPA	90		272,990			272,990
ligh Lonesome	Wind	3rd Party PPA	100		294,045			294,045
errin Ranch	Wind	3rd Party PPA	99		234,710		i i	234,710
nowflake White Mountain Power	Biomass	3rd Party PPA	14		77,261		A STATE OF THE STA	77,261
exton (Glendale Landfill)	Landfill Gas	3rd Party PPA	3		19,447			19,447
orthwest Regional Landfill Gas	Landfill Gas	3rd Party PPA	3		19,163			19,163
alton Sea/CE Turbo	Geothermal	3rd Party PPA	10		73,082			73,082
jo	Solar PV	3rd Party PPA	5		8,489			8,489
adger 1 Solar	Solar PV	3rd Party PPA	15		40,069			40,069
illespie 1 Solar	Solar PV	3rd Party PPA	15		42,481			42,481
rescott	Solar PV				25,352			
addle Mountain		3rd Party PPA	10					25,352
	Solar PV	3rd Party PPA	15		31,729			31,729
Z Sun: Chino Valley	Solar PV	APS	19		42,093			42,093
Z Sun: Cotton Center	Solar PV	APS	17		32,518		9	32,518
Z Sun: Foothills 1/II	Solar PV	APS	35		95,587			95,587
Z Sun: Hyder I	Solar PV	APS	16		38,483			38,483
Z Sun: Hyder II	Solar PV	APS	14		36,399			36,399
Z Sun: Paloma	Solar PV	APS	17		38,591			38,591
Z Sun: Gla Bend	Solar PV	APS	32		100,197			100,197
Z Sun: Luke AFB	Solar PV	APS	10		29,441			29,441
? Sun: Desert Star	Solar PV	APS	10		17,271			17,271
mall Solar Projects	Solar PV	APS	4		7,496		3,748	11,244
olana CSP	Solar CSP	3rd Party PPA	250		723,966			723,966
Gross Total			803	1.00	2,300,860		3,748	2,304,607
Adjustments								
Special Contrac	ts 1				(98,807)			(98,807
Green Choice S	ales				(22,608)			(22,608
Wholesale DE Compon	ent				(58,821)			(58,821
ubtotal Generation			803		2,120,624		3,748	2,124,372
ISTRIBUTED ENERGY (DE): esidential: UFI Installations * Non Incentive Installations	Various	Customer-Sided DE	132	155	227,852	53,566		281,419
	Solar PV	Customer-Sided D€	345	406	390,501	263,111		653,612
Flagstaff Community Power Project	Solar PV	APS	0.4	0.5	686			686
APS Solar Partner Program	Solar PV	APS	10	12	15,576			15,576
Gross Total			487	573	634,615	316,678		951,293
btotal Residential			487	573	634,615	316,678		951,293
n-Residential:								2.5,000
UFI Installations 4	Various	Customer-Sided DE	15	18	20,632	13,488		34,120
PBI Installations *	Various	Customer-Sided DE	116	136	207,322	7,419		214,741
Non Incentive Installations	Solar PV	Customer-Sided DE	34	41	21,948	40,268		62,216
DE REP 5	Solar PV	Customer-Sided DE	38	45	76,389	10,200		
Schools & Government (3rd-Party Owned)	Solar PV	Customer-Sided DE	36	42	76,509			76,389
Schools & Government (Utility-Owned)	Solar PV	APS Customer-Sided DE	17	15	1 CARACTES			76,509
Flagstaff Community Power Project	Solar PV	APS	0.9	1.1	21,313			21,313 1,763
Condition of the Condit		2000	to a section of					.,703
Gross Total 3			253	297	425,876	61,175		487,051
Wholesale DE Componen	t		n/a	n/a	58,821			58,821
btotal Non-Residential			253	297	484,697	61,175		545,872
btotal Distributed Energy 2 (# + C)			740	871	1,119,312	377,852		1,497,165
tal Renewable Energy Resources (A + D))				3,239,937	377,852	3,748	3,621,537
tal MWac equivalent *			1,543		3,23,337	377,032	2/148	2,022,037
tal Non Incentive Energy Resources					412,449	303,380		715,829
tal Non Incentive Mwacequivalent			380		412,443	303,360		/15,829
tal RES Resources * (F F)					2,827,487	74.477	3,748	2 605 705
tal MWac equivalent *					2,027,487	74,473	3,748	2,905,708
			1,164		L			
or to Table 1b.								

Notes to Table 1b:

Renewable Generation capacity is reported in MWac and DE is generally reported in MWdc.

Renewable Generation capacity is reported in MWac and DE is generally reported in MWdc.

Subtotal Distributed Energy e-production (actuals) - production (annualized) mMW for 2017, annualized generation comprised approximately 178 MW of all DE capacity. Production (annualized) assumes an average of 1,600 kWh per installed kW for non-residential systems.

In recompliance of the comprised production (annualized) assumes an average of 1,600 kWh per installed kW for non-residential systems.

Includes an engineering the complete of the complete

II. 2017 Associated Revenue and Costs

A. Renewable Energy Standard Adjustment Charge (REAC-1)

Revenues allocated to offset authorized program expenses are collected through both the Renewable Energy Standard Adjustment Charge (REAC-1) and base rates. REAC-1 collects funds for RES programs based on a per kWh charge and associated caps and averages as shown in the table below. Accrued revenue collected in a prior year may be designated to offset expenses in the current year.

1. 2017 RES Adjustment Schedule REAC-1 (effective August 19, 2017)

	Residential	XS Commercial (<20 kW)	XS/Small Commercial (21-100kW)	Medium Commercial (101-400 kW)	Large Commercial (401-3,000 kW)	Industrial (>3,000 kW)			
\$/kWh	\$0.010694/kWh								
Сар	\$4.28	\$15	88.88	\$267.35	\$534.70	\$3,475.00			
Average	\$3.90	\$8.93 Minimum Charge	\$44.65 Minimum Charge	\$224.66	\$464.22	\$3,475.00			

⁵ Per Decision Nos. 76295 and 76312.

Table 2a: 2017 RES Associated Revenues and Costs - As of December 31, 2017

Funds Available (Revenues)	
System Benefit Charge (SBC) Revenue ¹	\$ 6,000,000
Renewable Energy Standard (RES) Revenue & Other ²	\$ 103,502,89
Subtotal: 2017 Collections	109,502,89
2016 Committed Accrual for Solar Water Heaters ³	5,87
Prior Years Collected and Unallocated Funds ⁴	10,996,78
Balance of Funds Available as of December 31, 2016	11,002,658
Total: Available Revenue	\$ 120,505,555
Expenses (Costs)	
Energy/Incentives	
Renewable Generation Purchased Power	\$ 46,763,458
Paid Distributed Energy Incentives ⁵	\$ 33,556,867
Committed Distributed Energy Incentives ⁶	 5,166
Subtotal: Energy and Incentives	\$ 80,325,491
Non-Energy Costs	
Administration & Implementation	8,843,127
Research, Commercialization & Integration	170,972
Customer Outreach and Awareness Programs	 46,939
Subtotal: Non-Energy Costs	\$ 9,061,038
APS Owned Program Costs	27
Flagstaff CPP Revenue Requirement	\$ 104,453
AZ Sun Revenue Requirement	\$ 23,825,094
Schools and Government Revenue Requirement	\$ 3,028,136
Subtotal: APS Owned Program Costs	\$ 26,957,682
Total: Expenses	\$ 116,344,212
Balance as of December 31, 2017	\$ 4,161,344

Notes to Table 2a:

¹ Collected from base rates.

² Collected as part of the environmental surcharge and other miscellaneous 2017 program related receipts.

³ Balance of up-front incentives reservations for solar water heaters issued but not yet paid as of year-end 2016.

 $^{^4}$ Includes \$8.2M used to offset the 2017 RES budget in accordance with Decision No. 76312 (August 23,2017).

⁵ Incentives billed in 2017.

⁶ Balance of up-front incentive reservations for solar water heaters issued and paid at year-end.

B. Resource Costs

Pursuant to A.A.C. R-14-2-1812(b)(5), APS is required to report any above-market, utility-scale power purchase expenditures as well as cash incentive payments by technology. Actual costs are competitively confidential and have been redacted, but will be provided to Commission Staff pursuant to a protective agreement in this matter. Table 2b reflects actual 2017 expenses for projects reaching commercial operation in prior years and at contracted market pricing at the time of commercial acceptance.⁶

Table 2b - RES Resource Costs 1

COMPETITIVELY CONFIDENTIAL² 2017 RES-Attributable Energy Costs (Above Market - Utility Scale) RES Cost RES Cost Total RES Cost² Technology MW MWh (\$/MW)2 (\$/MWh)2 Wind 289 801,745 77.261 Biomass 14 Landfill Gas 6 38.610 73,082 Geothermal 10 Solar PV PPA 4 148,120 60 723,966 Solar CSP 250 44,246,005 2017 RES-Attributable Energy Costs (Above Market - Utility Scale)

Notes to Table 2b:

Table 2c - RES Cash Incentive Costs

Distributed Energy Production Based Incentive Program Costs for Systems Paid in 2017

			Pro	duction-Based	Incentives		
	MW	MWhi	((\$/MW)	(\$/MWh)2	Tota	l Incentives Paid (\$)
Solar Electric	223	323,838	\$	118,222	81	\$	26,311,742
Solar Water Heating	N/A	5,667			21	\$	121, 101
Solar HVAC	N/A	4,001			142	\$	568,936
Subtotal: Production Based Incentives	223	333,507				\$	27,001,779

Notes to Table 2c:

¹Includes energy installed in calendar year 2017 (estimated annual system offset).

Reflects 2017 incentive dollars divided by associated NWh.

Includes only 2017 program year costs incurred under new and legacy projects within the RES budget and is not comparable to a levelized cost of energy.

² Redacted due to the competitively confidential nature of the information.

Includes gross generation, and does not adjust for Wholesale DE allocations.

^{*}Does not include Purchase Power Agreements from Distributed Energy sources.

⁶ Invoice costs do not include associated system integration costs for these resources.

C. Residential and Non-Residential Incentive Program

Consistent with prior Commission decisions, APS offered no incentives in 2017.

D. Green Choice Rate Program

The Commission authorized APS to extend its Green Choice Program and the three associated Green Power Rate Schedules GPS-1, GPS-2, and GPS-3. In 2017, 1,383 customers subscribed to these rates for 22,608 MWh of sales and gross revenue of \$230,600.

In 2017, Green Choice block and percentage options were Green-e Energy Certified, and met the environmental and consumer protection standards set forth by the nonprofit Center for Resource Solutions. The renewable energy sources used in the APS Green Choice Program were: Biogas/Landfill Gas 3%, Biomass 11%, and Wind 86%.

E. Solar Water Heater Study

Per Decision No. 74949, APS invested approximately \$10,000 in Solar Water Heater (SWH) research and development to commission a study on the effects of SWH use relative to peak demand. By the end of January 2016, APS had installed SWH kits on eight homes in the study and began a subsequent 12-month data collection period in February 2016. Information was collected by tracking real usage data via the Sunnovations Ohm meter device, which can be installed on an existing solar water heater to track the solar energy usage versus traditional electric water heater usage.

The SWH study showed an overall energy and cost savings to customers who installed SWH systems. Customers who were able to shift water heating load to the window which occurs between 10 a.m. and 5 p.m. are those who were able to receive the greatest possible benefit (which minimizes the amount of operation of the backup electric generator). The study revealed that typical hot water usage aligns with morning and evening peak windows when customers are at home and demand is high on the system outside of the "solar peak". For the eight systems studied, the demand savings to the SWH customer was less than 1 kW on average with energy usage savings of approximately 1,000 kWh, resulting in savings of just over \$100 per year. Due to the size sample studied (8 systems), care should be taken in extrapolating these findings, which may not be representative of savings seen by an average APS customer.

F. Voluntary Solar Contribution Program

Per Decision No. 74823, the Commission authorized the Voluntary Solar Contribution Program (Solar Assist) and required APS provide a progress report on October 1, 2017 and provide an update in future annual RES Compliance Report filings, as necessary.

No contributions have been made to the Solar Assist Program since the first quarter of 2016. The program had a balance of \$259.71 on December 31, 2017. On October 11, 2017, APS filed a motion with the ACC to discontinue this program.

G. APS Solar Communities

No solar installations occurred under this program in 2017. The Independent Monitor Letter associated with this program can be found in Appendix A.

III. Additional Reporting

- Decision No. 72022 required APS to list cases within the previous three calendar years where APS has received damages or other considerations as a result of non-compliance related to RES contracts. No additional damages or other considerations were realized in 2017 as a result of non-compliance related to RES contracts. Please see APS's 2016 RES Compliance Report for any damages received in 2016 and 2015.
- Decision No. 71958 required APS to file in its annual REST reports, in the confidential materials provided to Staff, specific data associated with APS's Bagdad Solar Agreement. APS has provided this information to Commission Staff pursuant to a Protective Agreement executed in the matter.
- Decision No. 71646 required APS to provide Community Power Project -Flagstaff Pilot progress reports with its annual compliance report. APS completed the final installations associated with the Community Power Project in 2012. Updates on production and associated costs in 2017 for the Flagstaff Community Power Project can be found in Tables 1b and 2a. Per Decision No. 76295, the revenue requirement of the Community Power Project was transferred from the REAC into base rates in 2017.

Appendix

Appendix A: Independent Monitor Letter

MERRIMACK ENERGY GROUP, INC

December 13, 2017

Maggie Gibbs Program Consultant APS Customer Technology Arizona Public Service Company 400 N. 5th Street, Mail Station 9649 Phoenix, AZ 85004-3902

Re: Certification Letter of Merrimack Energy Group, Inc. as Independent Monitor for Arizona Public Service Company's ("APS") 2017 Request for Proposals ("RFP") for the APS Solar Communities program

Dear Ms. Gibbs:

Merrimack Energy Group, Inc. ("Merrimack Energy") has served as Independent Monitor for APS's 2017 Request for Proposals (RFP) for the APS Solar Communities program. The APS Solar Communities program is intended to expand access to rooftop solar for lower and moderate-income customers of APS, and will be available for customers throughout APS's service territory. Through this RFP, APS is seeking qualified third-party Contractors/Suppliers to install systems that are interconnected on the utility side of the meter for eligible customers. APS will deploy utility-owned photovoltaic solar generation projects connected to the distribution system. Participating customers will receive a fixed monthly payment for participating in the program. APS will own all of the generation assets, as well as the renewable energy credits and other attributes from this program. The Arizona Corporation Commission ("ACC") approved the program for a 3-year period on August 15, 2017.

Residential limited and moderate-income customers whose homes meet technical criteria such as roof structure load-carrying capability, and roof orientation will be eligible to have PV Facilities installed (4kW, 6kW or 8kW as defined in the specifications). The Company's customers must meet other basic program requirements to be eligible to participate in the project, including (1) limited income – defined as a household with income at or below 200% of the federal poverty level and (2) moderate income – defined as a household earning less than 100% of the median Arizona household income. Services to be provided by Contractors/Suppliers selected for the program via the RFP shall include the full and complete engineering, design, permitting, installation, commissioning, and operations and maintenance services as well as all other requirements for residential photovoltaic facilities which are listed in the Scope of Services for Contractors/Suppliers.

Merrimack Energy's role as IM covered the entire solicitation process and continued through the final selection of the Contractors/Suppliers chosen to participate in this program. APS invited twelve local suppliers to submit proposals. Three suppliers did not

submit a proposal. Of the nine suppliers who did submit a proposal, four suppliers were classified as "red" due to their failure to subscribe to ISNetworld, a third-party safety assessment system utilized by APS, which was a minimum threshold required in the RFP. Ultimately, five suppliers were selected and awarded a contract.

The role of the IM in this competitive procurement process was to ensure that APS's solicitation of APS Solar Communities program resources ("RFP Process") was conducted in a fair, transparent and unbiased manner in accordance with the APS Renewable Energy Competitive Procurement Procedure ("CPP") dated April 10, 2007, as well as the procurement provisions of the Arizona Corporation Commission's Resource Planning and Procurement Rules and Independent Monitor Responsibilities, Arizona Administrative Code R14-2-705 and R14-2-706. The tasks and services performed by Merrimack Energy are consistent with the requirements of the CPP, the Arizona Corporation Commission's Resource Planning and Procurement Rules and Scope of Work of the IM prepared by APS and agreed to and executed by both parties.

Among the tasks included in the IM Scope of Work were (1) review all associated RFP documents, response material, bidder Q&A and web-based electronic proposals and provide feedback to ensure the documents are complete and concise. As a part of this task, the IM also reviewed and commented on the evaluation criteria and methodology to be used to evaluate and rank each bid and provided feedback to ensure the evaluation criteria and methodology was reasonable and consistent for assessing all bids; and (2) monitor the bid evaluation and selection process, confirm that proposal information was appropriately applied, and assure the application of the RFP process complies with the CPP and Procurement Rules.

As part of the role of the IM, Merrimack Energy staff provided comments on the draft bidding documents, monitored the pre-bid meeting with prospective bidders, had several discussions with the project team regarding development of the evaluation criteria and methodology, and monitored the meetings of the project team to review and evaluate the proposals from Contractors/Suppliers as part of the evaluation and selection process, to ensure all Contractors/Suppliers and proposals were on a level playing field and were treated fairly and consistently.

Merrimack Energy certifies that the 2017 Request for Proposals for APS Solar Communities program solicitation process and proposal evaluation assessment was conducted in a fair, transparent, consistent, comprehensive and unbiased manner by APS. APS established procedures, rules, and criteria which guided the evaluation and selection process, and consistently applied such procedures. Furthermore, the level of due diligence undertaken by APS to arrive at a final evaluation and ranking of proposals was detailed and thorough and involved a team of analysts with expertise in related functional areas who reviewed and evaluated the proposals received. As such, all final proposals were evaluated on a consistent basis using the same criteria and information requested from all Contractors/Suppliers for each proposal, which ensured fairness and consistency in the solicitation process and led to the selection of the top ranked Contractors/Suppliers who will participate in the installation of rooftop solar systems for eligible customers. The IM

agreed with APS's evaluation and selection of the Contractors/Suppliers chosen for this initial phase of the program.

Very Truly Yours, Mayne Obver

Wayne Oliver

President

Merrimack Energy Group, Inc. 26 Shipway Place Charlestown, Mass. 02129